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LESSONS LEARNED IN PILOT SUSTAINABILTIY: VIETNAM CLIMATE IMPACTS DECISION SUPPORT TOOL

JUNE 2015

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ACRONYMS

CIMPACT-DST	Climate Impacts Decision Support Tool
DOC	Department of Construction
DONRE	Department of Natural Resources and Environment
HPI	Hue Planning Institute
IMHEN	Institute of Meteorology, Hydrology, and Environment
IRURE	Institute for Environmental Planning, Urban-Rural Infrastructure
ISET	Institute for Social and Environmental Transition
MOC	Ministry of Construction
RDMA	Regional Development Mission for Asia
USAID	United States Agency for International Development
VIUP	Vietnam Institute for Urban and Rural Planning

1. EXECUTIVE SUMMARY

From 2012 to 2015, the United States Agency for International Development (USAID) supported a project in Vietnam to configure, test, and deploy a climate impacts planning tool (CIMPACT-DST or tool) in support of integrating climate change considerations into the planning activities of Vietnamese cities and provinces. Cascadia Consulting Group, Inc. ("Cascadia") led this implementation effort, in close collaboration with the Vietnam Institute for Environmental Planning, Urban-Rural Infrastructure (IRURE), and the Vietnam Institute for Urban-Rural Planning (VIUP). Cascadia also worked closely with the Vietnam Institute for Meteorology, Hydrology, and Environment (IMHEN) to gather and vet national climate projections and impact information. The work was carried out under the Climate Change Resilient Development project, led by prime contractor Engility.

The team began by developing and deploying a pilot CIMPACT-DST for the coastal city of Hue. The intention was to build on that pilot to develop a version of CIMPACT-DST that could be broadly applied across Vietnam's 63 provinces.

By the end of the project in June 2015, 12 provinces had piloted or been trained in using CIMPACT-DST, and the tool had been applied to the development or review of at least 12 plans. VIUP had committed to continuing to maintain and update the tool, and communicate periodically with provincial partners. Local partners agreed to ask their staff to continue using the tool, and to share user feedback, new spatial data, and other relevant information with VIUP to integrate into the tool in the future. IMHEN agreed to be responsive to VIUP requests for data or clarifications, as VIUP integrates the new national climate change projections (forthcoming in late 2015 or early 2016) into the tool. In the long term, VIUP may need a small amount of financial support to continue to dedicate staff time to tool maintenance and updates. Many stakeholders pointed to a need for additional trainings – not only on CIMPACT-DST, but also on the linkages between climate change and urban planning – in various provinces and particularly with political leaders.

The Introduction, Project Rationale, and Tool Description sections of this report introduce the project and its objectives. The Approach and Results, Sustainability Planning, and Outcomes sections provide detail on project steps, outcomes, and outlook. Call-out boxes throughout this report highlight key points about pilot project scaling and creating sustainable, lasting impacts. The last section in the report summarizes lessons learned, including:

- Leverage existing processes and resources.
- Establish and foster key relationships, and explicitly establish local ownership.
- Put local partners in the spotlight.
- Think about scale-up and sustainability early in the process.
- Get local and customize the tool for the local context.
- Make it official: document or demonstrate support from political leadership in addition to technical staff.

The appendices include more information about tool functioning, implementation scale, and user feedback. Specifically, Appendix D presents the detailed results of in-depth interviews with five senior provincial staff and two VIUP tool administrators, and Appendix E provides detailed results from surveys of tool trainees and users.

2. INTRODUCTION

The Climate Impacts Decision Support Tool (CIMPACT-DST or tool) is an easy-to-use Excel-based decision support tool for urban planners and project developers. Cascadia Consulting Group, Inc. (Cascadia) initially developed CIMPACT-DST for the City of Seattle. In 2012, the United States Agency for International Development (USAID) expressed an interest in customizing CIMPACT-DST for use in Vietnam. Vietnam's significant climate exposure and relative abundance of existing climate change studies and projects presented a promising environment for customizing CIMPACT-DST to help turn more of that information into adaptation action on the ground.

From 2012 to 2015, under contract to USAID's Global Climate Change Office and working under the Climate Change Resilient Development project, Cascadia customized and deployed CIMPACT-DST in a pilot city and subsequently for use across the country's 760 cities and 63 provinces. The tool supports systematic integration of climate change considerations into urban planning and land-use decision-making, with the ultimate goal of building resilience in Vietnam to climate change impacts like sea level rise and increased flooding.

Cascadia worked closely the Vietnam Institute for Environmental Planning, Urban-Rural Infrastructure (IRURE) and the Vietnam Institute for Urban and Rural Planning (VIUP) throughout the process. IRURE is an organization under VIUP that specializes in the integration of environmental planning into urban and construction planning in Vietnam. IRURE also participates in designing technical criteria, training staff, and collaborating with domestic and international partners in the fields of climate change, environment, urban, and construction planning. VIUP has taken part in construction of the country since 1956, when the Urban division under the Architecture department was established. VIUP's staff consists of about 800 people over three regions: North, Central, and South. Its mission is to advance creative planning, modern planning methods, advanced design trends, and scientific research activities in the country through regional planning, master planning, and other urban planning projects.

3. PROJECT RATIONALE

Urban planning decisions shape future climate risks. Historically, urban planning in Vietnam neither included nor required formal consideration of climate change impacts. This situation is slowly starting to change. While the nation does not have official guidelines for climate change integration, its 2008 National Target Program to Respond to Climate Change and 2013 Urban Development Response to Climate Change demonstrated an understanding that the planning practices of the past can no longer assure the safety and well-being of tomorrow. Additionally, these policies require that every Ministry and local authority develop an action plan on climate change adaptation.

When the Vietnamese government and planners finalize a legal and procedural framework for climate change consideration in urban planning, there will be a need for a comprehensive, trusted, and streamlined methodology and set of resources and tools for implementing that framework. This project aimed to address that need through a national climate impacts planning tool that could provide an informational and procedural means for wide-scale climate mainstreaming. CIMPACT-DST already had a promising track record in Seattle, a city that faces some similar climate stresses.

The goal of tailoring the tool for Vietnam was to facilitate the integration of climate considerations into urban planning at all scales and help catalyze the transition from policies on paper to implementation on the ground. "Some planners might know about climate change, but they don't know how it is related to their work," says Dr. Luu Duc Minh, Director of IRURE.

THE PROJECT RESPONDED TO A WIDELY PERCEIVED NEED, AND FIT UNDER A SUPPORTIVE POLICY FRAMEWORK, BOOSTING ITS CHANCES FOR SUSTAINABILITY. THE TEAM ALSO USED A TESTED, PROVEN TOOL AS A STARTING POINT, WHILE RECOGNIZING THE NEED TO CUSTOMIZE IT FOR THE LOCAL CONTEXT.

Cascadia employed USAID's "development first" approach, which aims to help countries and communities achieve their development objectives despite a changing climate. Rather than treating climate change as a unique aspect of development, this approach incorporates climate stressors into the existing urban planning process (IRURE, 2013; USAID, 2014b).

4. TOOL DESCRIPTION

CIMPACT-DST is an easy-to-use Excel-based tool that helps local governments and planning agencies incorporate climate change impacts into their planning and operations. It is a flexible tool, and can be customized to reflect climate impacts, data, and other decision making needs unique to each jurisdiction. CIMPACT-DST enables users across sectors and departments to see policies, plans, regulations, and projects through a climate lens and use that data in consistent ways.

The tool compiles locally relevant information from multiple sources and filters that information based on simple user inputs. This tool functionality ensures that users see only impacts, information, and guidance that are relevant and useful for their task and decision-making timeframe, rather than wading through a long study or guidance document in search of pertinent information. Appendix A presents a simplified description of how CIMPACT-DST works, and Appendix B shows a screenshot of one of the user input pages.

THE TOOL IS EASY TO USE – INCLUDING FOR PEOPLE WHO ARE NOT COMPUTER PROGRAMMERS OR CLIMATE SCIENTISTS – AND HAS MINIMAL TRAINING REQUIREMENTS. THESE CHARACTERISTICS ALLOW FOR A LARGE POTENTIAL USER BASE AND THUS GREATER POTENTIAL SUSTAINABILITY. A LARGE NUMBER OF USERS MINIMIZES NEGATIVE REPERCUSSIONS OF STAFF TURNOVER.

In Vietnam, the national CIMPACT-DST applies to all political jurisdictions, from the province or city level for regional and general planning uses to the ward or commune level for detailed planning purposes.

As shown in Table 1 below, the Vietnamese CIMPACT-DST provides impact and guidance information related to several general urban planning types and eight specialized technical infrastructure sectors.

Table 1. Sectors and Planning Types in CIMPACT-DST

Plan Types	Specialized Technical Infrastructure Planning Sectors
Provincial regional plan	Transportation
General/master plan	Water supply
Detailed/zoning plan	Wastewater
Specialized technical infrastructure plans	Ground leveling and draining
General Urban Planning Sectors	Electricity supply and lighting
Spatial planning	Information and communication
Land-use planning	Solid waste
Urban design	Cemetery

4.1 TOOL AUDIENCE AND USERS

The intended users of CIMPACT-DST in Vietnam included Vietnamese government staff, non-profit organizations, private companies, international agencies, and government departments, institutes, and agencies. For example, VIUP could use the tool to develop a Regional Construction Master Plan. Local planning institutes could use it to inform new General Master Plans for peri-urban communes.

Secondary users who might also benefit from the tool include the Ministry of Construction (MOC), the People's Committees of the relevant provinces, investors in construction projects, and professional associations of planners and environmental professionals.

Surveys of CIMPACT-DST users and training attendees indicate that this target tool audience currently lacks an adequate understanding of projected climate change impacts. The majority of survey respondents (91%; n=11) claimed to be either not knowledgeable (27%) or only somewhat knowledgeable (64%) of climate change impacts affecting Vietnam and/or their province before attending the training (see Appendix E for full summary of survey responses). Many professionals do not know where to look for climate information; 79% of survey respondents depend on internet searches and 39% depend on the news media for their climate change information. CIMPACT-DST provides value as an accessible, streamlined, and comprehensive repository of climate information for this group of tool users.

THE MAJORITY OF SURVEYED TOOL TRAINEES DEPENDED ON INTERNET SEARCHES OR THE NEWS MEDIA FOR THEIR CLIMATE CHANGE INFORMATION.

Survey results also indicate confusion between development strategies that are "green" and "climate-resilient." Respondents commonly cited general best practices such as increasing green space, using "environmentally-friendly" materials, and "reducing environmental pollution" as strategies they have used to address climate change impacts. A number of survey respondents (12%) cited environmental pollution and emissions as an impact, as opposed to a contributor, of climate change. CIMPACT-DST helps these users understand nuanced differences between development strategies, to build urban plans that are both "green" and resilient.

Most surveyed urban planners and managers said that they work on between one and two plans per year (27%) or more than six plans per year (55%). The remaining respondents (18%) work on between two and three plans per year. Application of CIMPACT-DST will be limited to these planning schedules.

5. APPROACH AND RESULTS

5.1 PILOT TOOL

The project team selected the central coastal city of Hue, Vietnam, as a pilot city to test the customized tool at a small scale, largely because of recent complementary work in Hue funded by USAID's Regional Development Mission for Asia (RDMA). Under that project, the Institute for Social and Environmental Transition (ISET) had facilitated a vulnerability assessment that provided up-to-date climate impacts information that was useful for populating the tool.

Cascadia's initial contact in the pilot city was the Hue Planning Institute (HPI). Together with HPI staff and other stakeholders, the team identified priority sectors for analysis and collected local and regional climate projections, climate vulnerability data, and sector-specific impacts information from existing technical reports and stakeholder input.

Cascadia worked with HPI to design, develop, and distribute the CIMPACT-DST based on the six-step approach described in the customized methodology section at the right. Experiences and outcomes from the Hue pilot (2012 to 2013) informed development of a national-level tool for use throughout Vietnam (2014 to 2015).

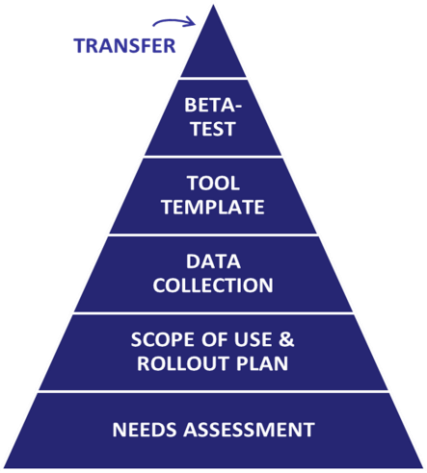
Effective CIMPACT-DST customization requires identifying key planning decisions that the tool could help inform. The project team studied the stages that urban planning in Vietnam typically follows, as well as the common sectors and scales. This front end research made the tool more effective for Vietnamese urban planners to use. "The tool is pretty well customized to the Vietnamese national planning system – it has all the sectors and planning types that we have," Mr. Nguyen Hoang Phuong, Deputy Head of the Hai Phong Planning Institute, said later. "So once users know their sector, they know they have information that is pretty specific to their need. The planning horizons in the tool are also tied to timeframes we use in Vietnam for planning."

A TOOL IS MORE LIKELY TO GET TRACTION AND BE SUSTAINABLE IF IT DOVETAILS WITH AN EXISTING PROCESS.

CUSTOMIZATION METHODOLOGY

The project team employed a six-step process to customize and deploy CIMPACT-DST:

1. **Assess tool user needs** and motivations.
2. **Finalize tool scope and systems**, and develop an initial plan for rolling out the tool across Vietnam.
3. **Gather local climate impacts and spatial information**, as well as existing vulnerability assessments and other references.
4. **Develop and populate the tool template**, in the local language.
5. **Beta-test the tool** and incorporate feedback.
6. **Transfer the tool to local ownership** and train administrators.



The project team developed the pilot Hue CIMPACT-DST through a collaborative, iterative process with the intended users and administrators. Once the tool was developed, Cascadia trained HPI staff on how to use, manage, and update the customized tool. Cascadia coordinated with HPI to showcase the tool at an event in Hue for local officials from city and provincial departments.

Planners in Hue then began applying the fully customized pilot Hue CIMPACT-DST to identify location-specific climate impacts and make land-use decisions that improve the climate resilience of new infrastructure investments. In late 2013, between visits from Cascadia consultants, urban planners at HPI independently identified the value of using the Hue CIMPACT-DST to inform climate-resilient master planning for four rural communes in Thua Thien-Hue province, which were slated for further urbanization. Further detail on three of these plans and tool-informed adjustments is provided in Figure 1 on page 10. HPI planners integrated several new resilience features into their plans, including softer infrastructure along coastlines, conservation of natural floodplain areas, and introduction of more saline-tolerant agriculture. Together, these four climate-resilient master plans will reduce the vulnerability of tens of thousands of residents by 2030. "It's a good information-compiling tool," said Mr. Dang Hoang Linh, Deputy Head of the Science Research Center at the Hue Planning Institute. "For provinces like Thua Thien-Hue, getting info about climate change is very difficult. The tool helps. It helps us build our awareness and learn."

THE PILOT HELPED IDENTIFY PROCESS IMPROVEMENTS THAT INCREASED EFFECTIVENESS DURING THE SCALE-UP EFFORT. FOR EXAMPLE, IT TURNED OUT TO BE HELPFUL TO SKETCH OUT INTENDED USERS AND USES IN DETAIL; WHILE THE PROJECT TEAM INITIALLY ASSUMED HPI WOULD USE THE TOOL FOR PLANNING IN HUE, THEY ENDED UP USING IT ACROSS THE PROVINCE MORE BROADLY, REQUIRING ADDITIONAL DATA.

HPI staff also modified the tool itself, without external assistance, by integrating local spatial information for additional geographic areas of interest. This was an indication that the administrator tool training had been effective, increasing its likely long-term relevance.

CLOSE COORDINATION AND HANDS-ON INVOLVEMENT – THROUGH TOOL DESIGN AND TESTING – ALLOWED LOCAL PLANNERS TO BUILD THE SKILLS NEEDED TO IDENTIFY NEW APPLICATIONS AND MAKE FUTURE UPDATES ON THEIR OWN.

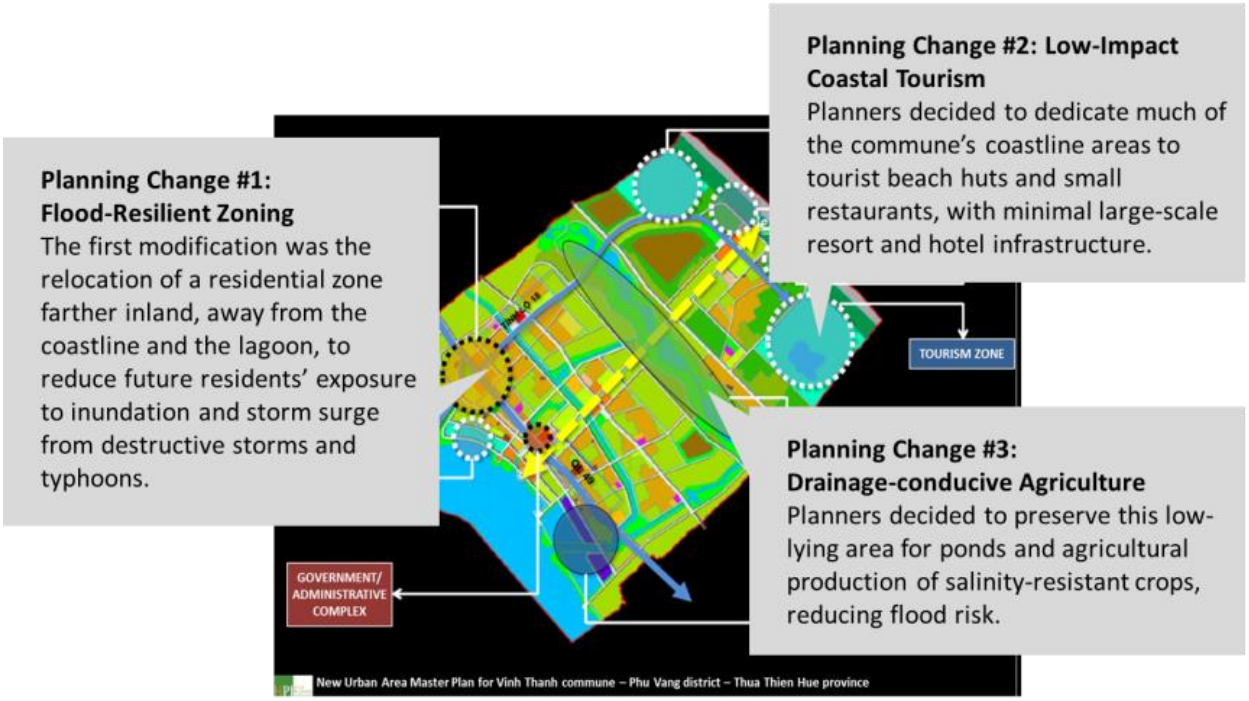
Official approval of the Hue CIMPACT-DST by the Provincial People's Committee of Thua Thien-Hue province provided political and financial support for continued improvement and use of the tool by HPI, with assistance from other provincial departments.

The Provincial People's Committee agreed that the tool's use in local planning activities would help build climate resilience in Thua Thien-Hue province. They approved and issued an official plan to form a steering committee to help manage and improve the Hue tool, and to work with the project team to continue improving the tool's functionality and content.

OFFICIAL APPROVAL FROM THE KEY POLITICAL AUTHORITIES GAVE THE LOCAL TOOL USERS CONFIDENCE THAT THEY WOULD BE ABLE TO USE AND IMPROVE IT IN THE LONG TERM. WE LEARNED THAT GETTING BUY-IN FROM PROVINCIAL ELECTED OFFICIALS MAY BE EVEN MORE IMPORTANT THAN GETTING BUY-IN FROM URBAN PLANNERS.

In 2015, the Hue Planning Institute (HPI) in An Van Duong, near Hue, used the tool in a project supported by ISET to research the causes of worsening flooding in several suburban areas. HPI staff used the tool to supplement other information sources. They plan to present the resulting research to the government and encourage them to make specific adjustments to increase flood resilience.

Figure 1. Planning Modifications as a Result of CIMPACT-DST Use in Vinh Thanh Commune



5.2 NATIONAL TOOL

After piloting in Hue, Cascadia adjusted the tool to cover the needs of a wider range of provinces and cities, so that it became a framework that could be applied at the national level, and populated with information for any location. The team began to explicitly plan for scale-up and long-term sustainability.

The project team selected two additional focus cities for testing the new, broader version of the tool: Ba Ria-Vung Tau and Can Tho. These cities were chosen to explore how tool deployment and uptake differs in varying contexts. Both cities are focus areas in the 2013 Decision No. 2623-QD-TTg policy that calls for climate change to be considered in urban planning, but Can Tho has had much more support and activity in climate change resilience to date than Ba Ria-Vung Tau.

The team gathered input on needs for additional tool functions through an evaluation visit to Hue and beta testing in Hanoi, Ba Ria-Vung Tau, and Can Tho. Representatives from VIUP and IRURE, based in Hanoi, traveled with the consulting team and participated in local meetings in Ba Ria-Vung Tau and Can Tho to demonstrate national government support for the tool, which helped build enthusiasm and perceived legitimacy.

During these evaluation visits, local users indicated that tool would be more useful with an introductory instructional tab; spatial data on erosion, salinity intrusion, and urban heat island effects; hyperlinks to relevant resources for users who want more detail on information summarized in the tool; and the ability to export the output pages for use in reports. Cascadia revised the CIMPACT-DST tool based on these beta test findings.

Once the national tool was fully configured and tested, the project team transferred it to ten key IRURE, VIUP, and MOC staff for deployment. The transfer process included training future tool administrators to update the tool as new climate information becomes available or policies are adopted, and instructing them on how to configure the tool for specific cities.

The team also shared the tool with a broader group through a national workshop in Hanoi in mid-2014, attended by more than 75 practitioners and 65 government planners and architects from more than 11 provinces in the Northern, Central, and Southern regions of the country. While Cascadia provided coordination and logistical support for the workshop, the Vietnamese partners were front and center at the workshop to demonstrate local ownership and buy-in. Representatives from Hue, Ba Ria-Vung Tau and Can Tho shared their experiences with the tool to date.

THE CONSULTANTS WERE INCREASINGLY REMOVED FROM THE EQUATION, WELL IN ADVANCE OF PROJECT END. LOCAL PARTNERS/AUTHORITIES WERE THE FACE OF THE NATIONAL WORKSHOP. VIUP SENT THE INVITATION LETTERS, AND WAS POSITIONED AS THE HOST OF THE MEETINGS.

THE MAPS USED IN THE TOOL ARE HOUSED ON VIUP'S SERVER, SO VIETNAMESE GOVERNMENT STAFF HAVE FULL CONTROL AND CAN UPDATE THEM AS NEEDED IN THE FUTURE.

6. SUSTAINABILITY PLANNING

SUSTAINABILTIY PLAN GOALS

- **The tool always has up-to-date information** (in the near term, this includes incorporating IMHEN's updated Climate Change and Sea Level Rise Scenarios, expected in late 2015).
- **The tool is populated with adequate local information for trained provinces**, including six that were newly trained on CIMPACT-DST in early 2015.
- **Local administrators know how to improve and maintain tool function** to meet evolving needs.
- **Tool use continues to expand** geographically, and in terms of the type and number of users.
- **Version control is maintained**.
- **The tool is used consistently**.
- **Results are shared and communicated**—both between provinces, and to international audiences.

Tool users and administrators identified a need to create a plan for long term tool maintenance and sustainability. At a national tool administrator training session in July 2014, participants emphasized the importance of a central tool administrating institution, such as VIUP, to maintain the tool's relevancy and merit. Furthermore, the new climate projections report was scheduled for publication by the Institute of Meteorology, Hydrology, and Environment (IMHEN) in mid- to late 2015. Administrators would need to update the tool with these new projections.

Accordingly, in early 2015, Cascadia and VIUP coordinated a series of stakeholder meetings to begin to develop a sustainability plan that would help ensure that the tool is up-to-date and useful into the future, even as the current USAID funding came to an end.

WE HELD STAKEHOLDER MEETINGS TO COLLABORATIVELY DEVELOP A SUSTAINABILITY PLAN, TOGETHER WITH KEY LOCAL PARTNERS WHO NOW OWN THE TOOL AND WHO CAN ANTICIPATE CHALLENGES UNIQUE TO THEIR INSTITUTIONS AND LOCAL CONTEXT.

The sustainability plan had several goals, detailed in the text box. The plan contained objectives, requirements, milestones, and resource needs and options, and described two new coordination mechanisms.

One coordination mechanism was to ensure increased and ongoing collaboration between the local and national level tool administrators. Although project team members had initially conceived that CIMPACT-DST would be administered and managed at the national level, representatives from the local pilot cities expressed strong interest in managing their own versions of the tool. Furthermore, planners at the national level do not have the capacity or resources to administer all local climate plans and ensure that all tools are updated with local information. A coordinated effort between national and local level tool administrators would be more sustainable, and requires clearly defining roles and responsibilities.

The other coordination mechanism was to ensure collaboration between planners and climate scientists. The Vietnamese urban planners need scientists to help them identify and access new scientific information – such as updated climate projections – that need to be integrated into the tool.

A key goal of the sustainability plan was to expand tool use, as an increased number of tool users and testimonials would be important for building nationwide buy-in and scale. In April 2015, the team conducted trainings in six additional provinces—Hai Phong, Ha Tinh, Lam Dong, Tien Gang, An Giang, and Ca Mau. Those provinces then tested the tool on several plans. In Lam Dong Province, for example, the planning department used the tool to review a zoning and detailed spatial plan for Phi Lieng Commune in Dam Rong District. This area was facing the impacts of increased precipitation, including flooding and landslides. "I asked the users to come up with solutions to make the plan more climate resilient," said Mr. Tran Duc Loc, head of the Urban Architecture and Planning Division in Lam Dong's Department of Construction. "When my staff learned that the site was under a flooding area, they came up with different solutions for how to adapt to that scenario." The plan now includes buffer forest zones along the sides of the creek and in the hills next to a school.

Cascadia also met with other development organizations and implementers in Vietnam, to explore how the tool could be useful in their projects and planning efforts, and to connect them to the tool administrators at VIUP. For example, ADB and USAID are supporting the development of Vietnam's National Urban Development Strategy, which could benefit from application of a climate lens.

THE TOOL HAS NO LIMIT ON LICENSES AND IS EASY TO DOWNLOAD FROM THE VIUP WEBSITE. WE ALSO SOUGHT OPPORTUNITIES TO ENCOURAGE BROADER USE IN OTHER RELEVANT, ONGOING PROJECTS, FREE OF CHARGE.

The team also worked closely with VIUP to ensure that they had the knowledge and capacity to continue to update and maintain the tool. It will not be easy, given all of the other demands on their time, but they see the value of the tool, feel responsible, and would like to see it widely used. "I will ask my staff to use the tool. Always," said Dr. Luu Duc Minh, Director of IRURE. He said that he and his staff "volunteer to keep [the tool] moving for the moment." Ms. Nguyen Thi Ngoc Nga, head of the GIS Division at VIUP, said, "After you leave, I am not sure how much time people can commit to the project—including myself. I will try my best to keep it going. I will propose that we send a notice to VIUP staff regarding this tool." There is also potential to incorporate the tool in IRURE's development of new climate change guidelines for smaller companies that are contracted to develop urban plans for Vietnamese jurisdictions.

Some provinces are more likely to continue using the tool than others. Those that received more training and were involved with the project for a longer time, like Hue, are committed to using the tool as much as possible. Some of the provinces that were exposed to the tool towards the end of the project see the value of using the tool but are unwilling to commit to using it consistently, given an already large workload. "If the tool is required, we will use it. But if we are not required to use it, we don't have the time," said one provincial representative. In contrast, another said, "I will try to instruct my staff to use the tool to integrate information into plans. I commit to requesting that they do that. I will make sure that they, step by step, use the tool." Some provincial representatives also noted that the tool could be even more applicable for other, non-governmental planners, given that the governmental planning institutes typically design larger plans and only review plans for smaller jurisdictions. One, for example, said that he would give the tool to a consulting firm owned by the provincial architects' association. Such associations and firms could be good groups to engage earlier in this kind of process, although it is probably helpful to have government buy-in to the tool first, given that the consulting firms are contracting with the government and following their instructions.

7. OUTCOMES

BY THE NUMBERS

Number of people trained to use CIMPACT-DST: **340** from **12** provinces

Number of people trained to manage and update CIMPACT-DST: **14**

Number of Plans revisited and/or modified as a result of applying CIMPACT-DST: **12+**

- Master plan for Vinh Thanh Commune, Phu Vang District
- Master plan for Vinh Hien Commune, Phu Loc District
- Master plan for Dien Loc Commune, Phong Dien District
- Master plan for Phong An Commune, Phong Dien District
- Plan for Phi Lieng Commune, Dam Rong District
- Economic plan for the Northern region
- Economic plan for the Central region
- Economic plan for the Southern region
- Zoning plan for Go Gang Island
- Zoning plan for Long Son Island
- Zoning plan for Nui Lon – Nui Nho
- Flood research and proposed plan adjustment in An Van Duong, near Hue

The project team administered interviews and in-person and online surveys to evaluate the following target project outcomes:

- Improved access to climate information
- Enhanced understanding of local climate impacts and how they relate to urban planning
- Increased consideration of climate change impacts in urban planning

Detailed summaries of survey and interview responses are provided in Appendix D and E, respectively. Progress towards each of these target outcomes is described in more detail below.

7.1 IMPROVED ACCESS TO CLIMATE INFORMATION

CIMPACT-DST improved access to climate information in two ways: 1) through tool provision and training, and 2) through compilation, translation, and synthesis of best available climate information sources.

Representatives from Cascadia and VIUP trained over 340 people from at least 12 provinces on how to use and apply the tool to urban planning projects. All of these users have direct access to the latest tool version through the VIUP website, where the tool and user guide are downloadable at no cost. Trained tool administrators at VIUP will continue to maintain the tool and use a compiled list of user email addresses to disseminate new tool versions quickly and effectively to the user base.

In the process of developing and customizing Vietnam CIMPACT-DST, the project team synthesized, categorized, and translated climate impacts and guidance information from over 30 reports and references, over 20 of which were previously only available in English. Tool users consistently cite this extensive compilation of best available resources among the top tool strengths. Users in Hai Phong, for example, said that their favorite tool features were the diverse but synthesized information and easy-to-understand outputs and recommendations.

Data availability limited the extent to which CIMPACT-DST could improve climate information access. Many survey respondents wished that the outputs and recommendations were more specific or prescriptive, and that the maps were higher resolution. Unfortunately, no higher- resolution maps or prescriptive guidance have been generated for those locations.

7.2 ENHANCED UNDERSTANDING OF LOCAL CLIMATE IMPACTS AND HOW THEY RELATE TO URBAN PLANNING

Every surveyed tool user cited an increased understanding of climate change impacts compared to their understanding before introduction to the CIMPACT-DST project. Half of survey respondents claimed that their involvement in the project "significantly increased" their understanding of climate change impacts in Vietnam. All surveyed tool users also stated that they now feel better prepared to consider climate change in urban planning projects.

ALL SURVEYED TOOL TRAINEES FEEL EITHER "BETTER" OR "MUCH BETTER" PREPARED TO CONSIDER CLIMATE CHANGE IN URBAN PLANNING PROJECTS.

7.3 INCREASED CONSIDERATION OF CLIMATE CHANGE IMPACTS IN URBAN PLANNING

At least 12 urban plans have either been revisited or modified as a result of applying CIMPACT-DST (see text box on page 14 for a list of plans). Planners adjusted these plans in a variety of ways, including:

- Rezoning residential and commercial areas to protect against tidal and storm surge impacts
- Preservation of ecosystems that provide critical resilience services (e.g., pine forests along hillsides, wetlands in low-lying coastal areas)
- Restrictions on development along rivers and coasts to reduce flood and storm damage costs
- Reduction of impervious surface cover

All respondents said they were either likely (69%) or very likely (31%) to continue using CIMPACT-DST in the future. Dr. Luu Duc Minh, Director of IRURE at VIUP, stated, "I will ask my staff to use the tool. Always." A provincial department of construction representative claimed, "I will try to instruct my staff to use the tool to integrate information into plans. I commit to requesting that they do that. I will make sure that they, step by step, use the tool."

Respondents may not use the tool for every plan, however. Although 40% of the urban planner and manager respondents said they would apply CIMPACT-DST to *all* upcoming planning projects, 20% said they would not apply CIMPACT-DST to *any* upcoming planning projects. Respondents explained that they would be more likely to use CIMAPCT-DST in the future if it were mandatory; helped more with the reviewing process; or provided more locally-specific and higher resolution climate information.

SURVEY RESPONDENTS SPECULATED THAT THEY WOULD BE MORE LIKELY TO USE CIMAPCT-DST IN THE FUTURE IF IT WERE MANDATORY AND PROVIDED MORE LOCALLY-SPECIFIC, HIGHER RESOLUTION CLIMATE INFORMATION.

8. LESSONS LEARNED

The following represent major lessons learned in getting traction with a customized version of CIMPACT-DST, and taking it to scale across Vietnam.

- **Leverage existing processes and resources.** Instead of building a stakeholder group and review process from scratch, leveraging the relationships, processes, and momentum of an existing stakeholder group or process saved time and resources for both the project team and its stakeholders. This included ensuring that our tool was compatible with existing planning processes in Vietnam, as well as partnering with stakeholder groups like the Urban Climate Resilience Community of Practice to conduct outreach and gather feedback.
- **Establish and foster key relationships, and explicitly establish local ownership.** Establishing close collaborative relationships with local and respected climate experts and key stakeholder organizations was vital to gathering accepted and locally relevant climate information as well as overall project support. Having VIUP engaged as a partner from the beginning, with a clear intent to fully transfer the tool after beta testing, helped VIUP develop a sense of ownership well before project close-out. As a result, they were willing to continue to put time into updating and maintaining the tool for some time after the end of the project, even in the absence of new dedicated funding. In contrast, our engagement with IMHEN was perhaps perceived as more one-sided, as we asked them to share data without being able to offer them anything concrete in return; they demonstrated interest in the final project outcomes but were understandably less willing to formalize their commitment to continued involvement with CIMPACT-DST maintenance in the future.
- **Put local partners in the spotlight.** The consultant team made an effort to take a back seat to local partners in key meetings and workshops, so that other stakeholders were used to viewing them as project leads and tool owners, and the transition at project end could be less abrupt.
- **Think about scale-up and sustainability early in the process.** Clear plans and steps for sustained use and maintenance after project completion should be outlined as early in the project as possible to best position the project for long-term success. We started a number of efforts early in the project, but other sustainability planning efforts were initiated in the last six months, as needs became clearer.
- **Get local.** Actions to generate and integrate locally-generated and relevant information and tools should be pursued, where possible. Tool users were more willing to use and own the tool that was customized just for them. Tool users were vocal in their appreciation for the inclusion of local maps and data, and asked for more. They also appreciated that it clearly reflected the types of planning and time horizons typically used in Vietnamese planning processes, which made it easier to apply to their work.
- **Make it official.** Achieving official support from the Provincial People's Committee in Hue served as a critical step towards sustained and distributed use of CIMPACT-DST in that province. On our final trip to Vietnam, partners from other provinces noted that making the tool official or mandatory would help ensure it was widely used, although they weren't sure they had the leverage to realize that goal and said that it could take years.

9. FURTHER INFORMATION

Decision No.2623-QD-TTg dated 31 December 2013 of the Prime Minister on urban development response to climate change 2013 - 2020.

IRURE. 2013. Technical Guidance: Integration of Climate Change Considerations into Urban Planning in Vietnam. Institute for Environmental Planning, Urban-Rural Infrastructure.

USAID. 2014a. The Climate Impacts Decision Support Tool: Integrating Climate Information into Land-Use Decisions in Vietnam. February. United States Agency for International Development. Available: https://docs.google.com/a/ccrdproject.com/viewer?a=v&pid=sites&srcid=Y2NyZHByb2plY3QuY29tfGNjcmR8Z3g6MjRiNGU4ZWM0YmE2ZTBiZQ

USAID. 2014b. Climate-Resilient Development: A Framework for Understanding and Addressing Climate Change. United States Agency for International Development. Available: http://pdf.usaid.gov/pdf_docs/PBAAA245.pdf

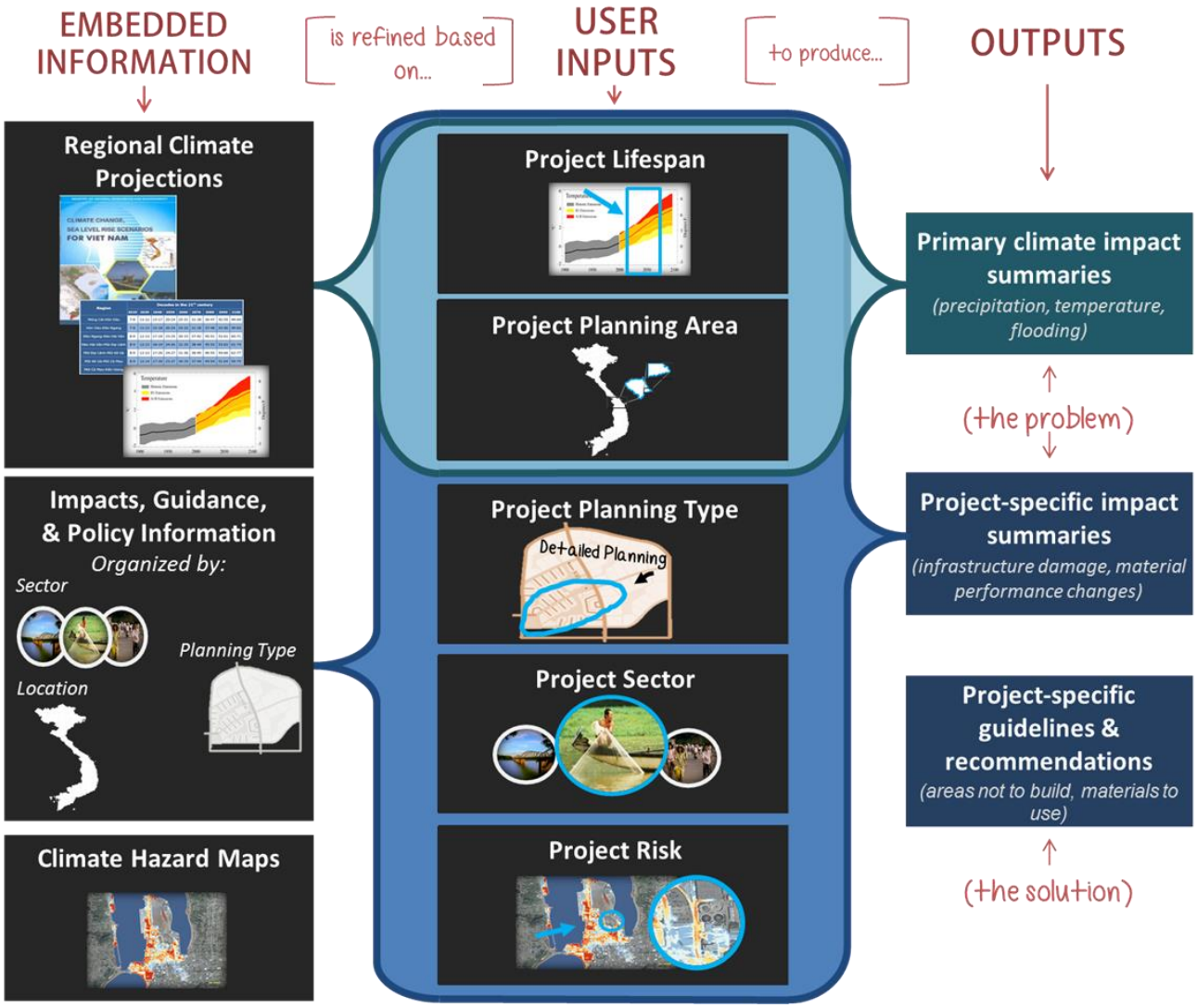
USAID. 2014c. Project Summary: Hue Climate Impacts Decision Support Tool. October. United States Agency for International Development. Available: https://docs.google.com/a/ccrdproject.com/viewer?a=v&pid=sites&srcid=Y2NyZHByb2plY3QuY29tfGNjcmR8Z3g6MzcxZDVmNThlZWI5MzBiNw

Project website: http://www.ccrdproject.com/adaptation-partnership/climate-impacts-decision-support-tool

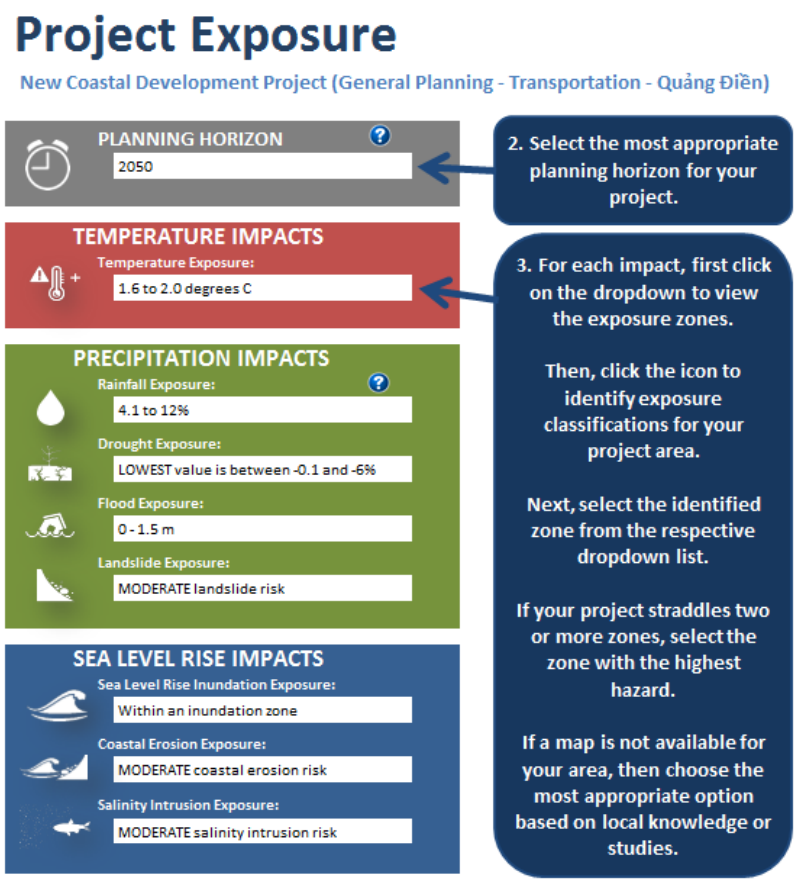
APPENDIX A. TOOL FUNCTION

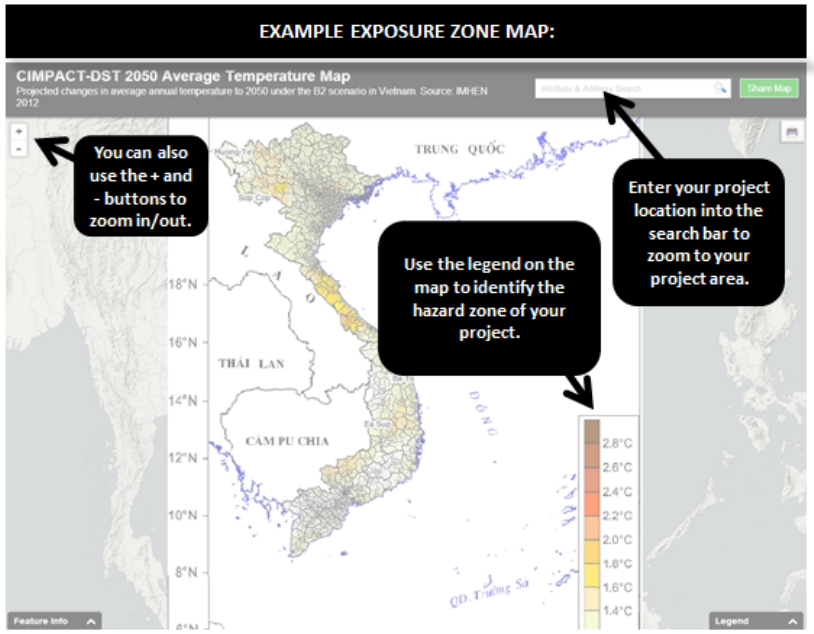
CIMPACT-DST synthesizes, simplifies, and integrates different types of climate-related information from a variety of sources.

Users enter simple specifications on the type, lifespan, and location of an urban planning or infrastructure project, and the tool provides climate impact and guidance summaries specific to the project sector (such as transportation or water supply), geographic area, and risk profile.



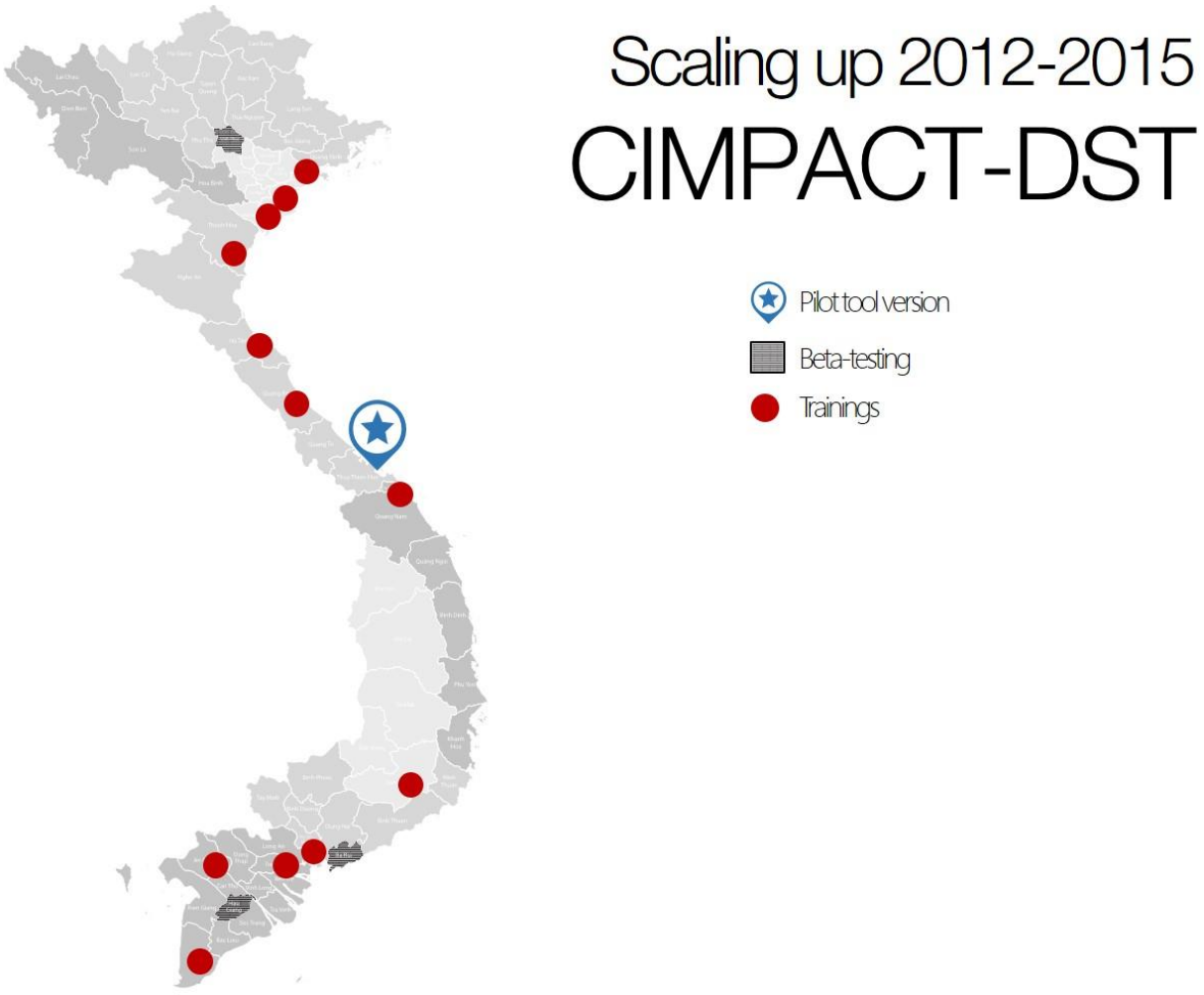
APPENDIX B. SCREENSHOT





APPENDIX C. TRAINING/ENGAGEMENT MAP

CIMPACT-DST was piloted in the central city of Hue, Vietnam in 2012. Experience and lessons learned from the pilot Hue tool informed customization and deployment of a national-level CIMPACT-DST, which was beta-tested in three provinces before official dissemination and transfer at a national workshop in July 2014. Since the tool's official release in 2014, the Vietnam Institute for Urban and Rural Planning (VIUP) has conducted trainings in over nine provinces to educate urban planners on the importance of climate change in urban planning and use of CIMPACT-DST to facilitate development and review of climate-resilient urban plans.



APPENDIX D. INTERVIEW RESPONSES

Note: These interviews were conducted in Hanoi on June 3, 2015, lasting 20-60 minutes each. Not all interviewees responded to all questions, given time constraints. Some of the provinces were only very recently exposed to the tool (through trainings in April), while others attended the national workshop in July 2014 or piloted the tool earlier.

Interviewees (listed in random order, not corresponding to the letters used below):

- Head of the Architecture and Planning Division, Department of Construction, Lam Dong province.
- Vice Director of the Hai Phong Planning Institute, landscape and urban design group. Also manages science research.
- Deputy Head of the Architecture and Planning Division of the Department of Construction (DOC) in An Giang province.
- Head of Scientific Research, Training, and International Cooperation Department in the Hue Planning Institute.
- Head of the Architecture Management and Construction Planning Division of the Department of Construction in Ca Mau province.

1. How many plans does your department or division create or review each year, on average?

- **Respondent A:** Our division reviews 3-4 zoning plans per year, for big cities. (Districts don't have zoning plans, only master plans.)
- **Respondent B:** About 10 plans per year on average.
- **Respondent C:** The design department creates about 5 plans per year.
- **Respondent D:** I review master and zoning plans for big urban areas and specialized areas like economic zones, industrial parks, sports complexes. We also provide feedback for smaller detailed and zoning plans for districts. We review at least 10 plans last year, covering all of the above types.
- **Respondent E:** We aren't directly involved in the planning process unless the province assigns plans to DOC. DOC is only in charge of a plan when it is a province-level or regional plan. Or if the plan is for two districts or is very important to the province. We hire consultants – private consulting firms –who create the plans for us. We manage them, assign tasks to them. We review their plans.

  This morning we talked about smaller master plans, district level plans. Smaller consulting firms do those and they don't have the knowledge on climate change. When we review their plans, we know they're not doing a very good job in terms of that. So we basically approve the plan as long as it's not really bad. I use my own local knowledge of climate change in the province to review the plan. Normally, district level plans have a shorter timeframe than bigger plans. [e.g., 10 years vs. 20-50 years]

2. **When did you first learn about climate change?**

   - **Respondent A:** About three years ago, when I attended a climate change workshop funded by the Ministry of Agriculture.
   - **Respondent B:** In the university, we had three semesters on Vietnam's climate (current conditions) – they didn't teach us about future scenarios. We learned about basic climate conditions. I graduated in 2000, and back then climate change wasn't really talked about that much. But recently, over the last 5 years, people are talking more about it.
   - **Respondent D:** Around 2010. Through trainings.
   - **Respondent E:** In the past, when we talked about rain in [our province], it was nice, and the cold was a nice mild cold. But nowadays the rain is torrential, there's a lot of hail. So it's destroying the crops. The cold is really cold. It's definitely something we didn't experience in the past. The drainage system is insufficient for the increasing precipitation. [The province] has definitely seen climate change in the urban areas.

3. **Before your involvement in this project, was climate change something you had thought about with regards to urban planning specifically? What information sources did you consult?**

   - **Respondent A:** Yes I thought about it some. I thought it would impact my plans, but I didn't act on it – didn't integrate it.
   - **Respondent B:** Yes, I had already thought about how climate change could impact infrastructure. When we plan ground height, if it's a low lying area by the coast, we try to get the information on sea level rise impacts.
   - **Respondent C:** Yes, I was already familiar with climate change.

4. **Has your involvement in this project changed your familiarity with projected climate change impacts in Vietnam, and/or your understanding of how climate change relates to urban planning? If so, how?**

   - **Respondent B:** The training focused mostly on the tool, which was new. The training didn't really talk about climate change impacts.
   - **Respondent C:** Personally, since I got access to the tool, I feel inspired to learn more about climate change. I need to learn more about climate change. I also talk about climate change with my coworkers, partly because of the tool and also because of other projects.

5. **What are your impressions of the CIMPACT-DST tool? What are the tool's primary strengths?**

   - **Respondent A:** My staff who attended the training said that it's easy to use. I used it myself.
   - **Respondent B:** I think the tool is necessary because there's a lot of climate change information but this is the first tool that all the information we need in one place. The tool is a new method/faster way to get the IMHEN data versus reading the whole thick report. It's built in Excel, so it's very easy to use – everyone has Excel. Even without a user guide, it's pretty easy to use. The tool is pretty well customized to the Vietnamese national planning system – it has all the sectors and planning types that we have. So once users know their sector, they know they have information that is pretty specific to their need. I'm talking about the tool structure. The planning horizon /timeframes are also tied to timeframes we use in Vietnam for planning. We like that the tool has all different climate impacts that we should consider. I think that the framework is really good. For the tool outputs – users were able to export the output pretty easily.

- **Respondent C:** It's a good information compiling tool. For the provinces, getting about climate change is very difficult. The tool helps. It helps us build our awareness and learn. When we use the tool, the recommendations may be generic, but I actually think they are very applicable to plans. I like the tab on reference sources – I've read most of the documents on that tab and I think they are really useful for my work.
- **Respondent D:** I think the tool helps architects and construction managers to gain a perspective on climate change and access climate change data. We haven't had enough time to really use it yet. I learned about it last year at the national workshop. I shared my experience with my staff. My staff were trained a month ago. They liked it because they learned about a new way to orient themselves when they review plans. The tool can be a standardized way to look at climate change resilience when reviewing plans.
- **Respondent E:** It's simple, fast, and the output is good to help us adapt to climate change impacts. The impacts are specific to sectors. The tool helps urban planners work better with other investors and managers of the plans. The users used the tool recommendations to customize their own planning solutions.The tool is free. We got the tool transfer for free. If we go to an autocad training we have to pay a lot of money. I've only been exposed to this project for a short amount of time, but I think that for me, personally, and for my department, having a discussion with my staff was really beneficial. My young staff put together the handout I gave you this morning. It shows that they understand that using the tool is very fast for giving you climate information you need.

  Before using the tool, I asked some of the architects how they got the information. They said they just followed their boss's instructions. But now with the tool they can figure it out on my own. So it becomes an individual product [that they can be proud of]. So they feel like they find the information themselves using the tool rather than being told by somebody. It's better to have something than nothing – in the past, we had nothing. For my young staff, it's really a good experience.

  Without CIMPACT, I can find information, but it takes a long time and isn't organized well. I'm personally very aware of climate change so I research it for myself when I review plans, but before the tool it took me a lot of time. Now it's faster. It's a step up in the method getting information.

6. What are the tool's shortcomings?

- **Respondent A:** It's a bit slow, a little bit frustrating. I don't know why it's slow- maybe an issue with my computer. The maps loaded slowly. My staff also said the maps are low resolution.
- **Respondent B:** I understand the maps are low resolution because that's what we had available; if we had better maps, that'd be nice. Because the map was low resolution, it was a little bit difficult for users to figure out the right area.

  It can take a lot of time to load – an app would be better!

  The tool recommendations are too generic.
- **Respondent C:** Because it is an info compiling tool, it can be difficult to have all the best available information. The recommendations are generic. So when we want to apply those recommendations, we have to customize them for the local context, based on our experience. We need to read the reference documents to get more concrete information.
- **Respondent E:** The maps are low resolution, which is understandable because that's what was available.

  The users were a bit suspicious because the plan was for a commune, but the map [in the tool] was a national map. The information only scales down to the district level, but we're looking at a commune. The users wondered if the information was still accurate at the smaller scale.

7. **What kinds of plans do you think CIMPACT-DST is best suited for?**

   - **Respondent A:** Master plans. When you create a master plan you set requirements for other plans – like zoning plans. In my province we have 2 plans underway and we want to apply this tool. I hope to integrate this tool into the two plans, and show them to the provincial leadership so they see how useful it is.
   - **Respondent B:** Any plan, from master plan to local, but it's national data so it's best suited for master plans. More detailed plans need more detailed data.
   - **Respondent D:** Probably for master plans. Master plans are very important – they are the foundation for other plans. The tool can also be used for zoning and district plans to make sure they align with master plans.

8. **How likely is it that you / your staff will use CIMPACT-DST tool in the future?**

   - **Respondent A:** I will try to instruct my staff to use the tool to integrate information into plans. I commit to requesting that they do that. I will make sure that they, step by step, use the tool. Sometimes people move around in the department so for the reviewers I hope that the next generation of reviewing staff will be able to use it. I am on the board of the provincial architects' association; I would like to share our meeting outcomes with the architects in the province.
   - **Respondent B:** If the tool is required, we will use it. But if we are not required to use it, we don't have the time. We already have a center that is a joint effort between the Department of Technology and DONRE, which does the strategic environmental assessments for us; I think they include climate change. I don't know how they get their information.
   - **Respondent C:** We will definitely use it. We need climate change information for our plans. The number of users may be limited because of the weaknesses I mentioned. Currently, four people are using it. We introduced it to everyone, but only a few people care about it.
   - **Respondent D:** This year, it's probably not possible. For one simple reason: this year, Vietnam is having big meetings of communist party members at different levels. The leaders are thinking about getting reelected, rather than other new things. So it's hard to insert anything new in the process.

9. **What do you think Cascadia or VIUP could have done differently to make this tool or project more useful or successful?**

   - **Respondent C:** I think it has been successful, given the awareness level of Vietnamese government officials, especially in construction and urban planning. Not many people in local governments understand about climate change or care that much. I think it has been successful to the extent it could have been successful.
   - **Respondent E:** When you apply the tool to other countries, please think about the audience, try to reach younger people. In a small province, architects or engineers are just a few years out of university. When you bring the tool to younger architects that are just out of school, they are very proud of learning something new.

10. **What could VIUP (or others) do in the future to ensure that the tool is useful for local urban planning projects?**

    - **Respondent A:** This morning, we discussed that VIUP administrators can call provinces every 3 months to see if they have new data.
    - **Respondent B:** Talk with the Provincial People's Committee to institutionalize the tool in planning – to issue a decision like the one in Hue.

- **Respondent C:** I think VIUP should integrate the new scenario data and other reports/data. It's good enough as it is just keep updating it with new national level information. For the local level, I think it's harder for VIUP to integrate local data because it has its own format. It's probably better for us to reach out to provincial departments to get that information.
- **Respondent D:** To make the tool more popular and more effective, we need to think about the institutionalization of the tool – without that, it is just a tool that we can teach people and they can use it and it may raise their awareness but then they don't see the need of using it. To integrate CIMPACT into planning, we need to legalize it, make it mandatory. That's the first step. Deputy Directors of planning institutes are on board, but we need it to be a requirement coming from the ministry / PPC. I think VIUP needs to restate the values and effects of the tool, and propose to MOC leaders to apply it in the planning process. I'm still rooting for the institutionalization of the tool – without that, we're just discussing it, not actually using it. Without institutionalization, application of the tool is not very realistic.
- **Respondent E:** It would be great to have a mechanism to make the tool more popular, maybe adding it to the strategic environmental assessment, make it mandatory. In addition to selling the tool to the users, we need to sell it to the leaders [at DOC, because they review and approve plans]. Our leaders don't think that climate change will affect them. They haven't seen how climate change will affect their cities. So we need to do more awareness raising with provincial and district leaders. I hope to have more trainings.

11. Do you have any additional thoughts, questions, or comments you would like to share?

- **Respondent A:** The coordination in the province is challenging for us. DOC needs to get the information from somewhere in order to give it to VIUP.
- **Respondent B:** I like the structure of the tool, but would like to see more specific/local information in it.
- **Respondent D:** The problem is young staff – we need to help them learn about the tool, understand it and be able to use it in practice. From the time that an architect graduates from school, if they've already been working in the field for more than 5 years, it's hard to make them change their habits. So I try to train young staff.

  We have the provincial architects association. They have a consulting firm that belongs to the association. I can pass on the tool to the private consulting firm so they can use it when they are hired to do plans. I'm the vice president of the association so I'll use that firm as an experiment. Once we are done with that experiment, we'll introduce the tool to the rest of the architects in that association. Alone, I can't do it – but using the association as leverage could be a good way to popularize the tool. I really want to put that into practice, using the consulting firm as the pioneer and have them share their experience. Our association members also own 11 other consulting firms – those could be good channels to spread the word. They have the capacity to apply the tool. I will know better next year. This year, the communist party meetings are going to occupy the leadership and we may not have many requests for new plans. Please email me when you have the new version of the tool and I will distribute it with my association.

APPENDIX E.
SURVEY RESPONSES

PRE-TRAINING SURVEY

The following tables summarize results from pre-training surveys administered to six provinces in April 2015.

1. What is your gender?

n = 103 2 blank (1.9% of all respondents)

	Hai Phong		Lam Dong		Tien Giang		Ha Tinh		Ca Mau		An Giang		TOTAL	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Male	1	11%	12	60%	10	91%	12	63%	17	74%	18	95%	70	69%
Female	8	89%	8	40%	1	9%	7	37%	6	26%	1	5%	31	31%
TOTAL RESPONDENTS	**9**	**100%**	**20**	**100%**	**11**	**100%**	**19**	**100%**	**23**	**100%**	**19**	**100%**	**101**	**100%**

2. What is your departmental/organizational affiliation?

n = 103 3 blank (2.9% of all respondents)

	Hai Phong		Lam Dong		Tien Giang		Ha Tinh		Ca Mau		An Giang		TOTAL	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
DOC	2	22%	16	73%	8	73%	4	21%	2	10%	11	58%	43	43%
Consulting Company	0	0%	5	23%	3	27%	0	0%	4	20%	7	37%	19	19%
District –level Construction and Planning Division	0	0%	0	0%	0	0%	1	5%	13	65%	1	5%	15	15%
Other Provincial Departments	0	0%	0	0%	0	0%	9	47%	1	5%	0	0%	10	10%
Planning Institute	0	0%	1	5%	0	0%	5	26%	0	0%	0	0%	6	6%
Professional Association	2	22%	0	0%	0	0%	0	0%	0	0%	0	0%	2	2%
University	5	56%	0	0%	0	0%	0	0%	0	0%	0	0%	5	5%
Other	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
TOTAL RESPONDENTS	**9**	**100%**	**22**	**100%**	**11**	**100%**	**19**	**100%**	**20**	**100%**	**19**	**100%**	**100**	**100%**

3. What is your role/position?

n = 94 2 blank (2.1% of all respondents)

	Hai Phong		Lam Dong		Tien Giang		Ha Tinh		Ca Mau		An Giang		TOTAL	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Planning/Construction Inspector/Reviewer	N/A	N/A	7	32%	0	0%	2	11%	10	43%	5	29%	24	26%
Planning/Construction/Architecture Manager	N/A	N/A	7	32%	3	27%	1	5%	6	26%	6	35%	23	25%
Architect/Designer	N/A	N/A	6	27%	3	27%	4	21%	4	17%	5	29%	22	24%
Government Administrator	N/A	N/A	1	5%	2	18%	10	53%	0	0%	0	0%	13	14%
Urban Planner	N/A	N/A	3	14%	1	9%	2	11%	1	4%	1	6%	8	9%
Other Management	N/A	N/A	1	5%	1	9%	0	0%	0	0%	0	0%	2	2%
Other	N/A	N/A	0	0%	0	0%	0	0%	2	9%	0	0%	2	2%
TOTAL RESPONDENTS	**0**	**100%**	**22**	**100%**	**11**	**100%**	**19**	**100%**	**23**	**100%**	**17**	**100%**	**92**	**100%**

4. What are some of the climate change impacts that could affect your city or province? (Respondents may have more than one answer)

n = 102 1 blank (1% of all respondents)

	Hai Phong		Lam Dong		Tien Giang		Ha Tinh		Ca Mau		An Giang		TOTAL	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Temperature increase	2	22%	18	82%	7	64%	6	33%	8	35%	6	32%	47	46%
Precipitation/flooding	4	44%	4	18%	2	18%	9	50%	4	17%	14	74%	37	36%
Sea level rise	8	89%	0	0%	4	36%	6	33%	13	57%	4	21%	35	34%
Storm surge/high winds	1	11%	5	23%	5	45%	11	61%	5	22%	1	5%	28	27%
Drought	0	0%	1	5%	1	9%	7	39%	2	9%	5	26%	16	16%
Environmental pollution/emissions	1	11%	3	14%	3	27%	2	11%	2	9%	1	5%	12	12%
Salinity intrusion	1	11%	0	0%	3	27%	1	6%	3	13%	3	16%	11	11%
Other	1	11%	7	32%	0	0%	5	28%	2	9%	0	0%	15	15%
TOTAL RESPONDENTS	**9**	**100%**	**22**	**100%**	**11**	**100%**	**18**	**100%**	**23**	**100%**	**19**	**100%**	**102**	**100%**

5. Where do you currently access information about anticipated climate change impacts? (Respondents may have more than one answer)

n = 103 1 blank (1% of all respondents)

	Hai Phong		Lam Dong		Tien Giang		Ha Tinh		Ca Mau		An Giang		TOTAL	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Internet	5	56%	19	86%	9	82%	12	67%	19	83%	17	89%	81	79%
Media (news, magazines)	3	33%	9	41%	7	64%	5	28%	10	43%	6	32%	40	39%
MONRE/DONRE	2	22%	1	5%	1	9%	3	17%	2	9%	2	11%	11	11%
Trainings/workshops	2	22%	3	14%	0	0%	3	17%	0	0%	0	0%	8	8%
Hydro/met center	1	11%	1	5%	0	0%	0	0%	0	0%	1	5%	3	3%
Books/reports	1	11%	1	5%	1	9%	0	0%	0	0%	0	0%	3	3%
Other Government (e.g., PPC)	0	0%	1	5%	0	0%	1	6%	0	0%	0	0%	2	2%
Other	1	11%	1	5%	0	0%	1	6%	1	4%	2	11%	6	6%
TOTAL RESPONDENTS	**9**	**100%**	**22**	**100%**	**11**	**100%**	**18**	**100%**	**23**	**100%**	**19**	**100%**	**102**	**100%**

6. What are some ways to address climate change impacts in urban planning? (Respondents may have more than one answer)

n = 103 9 blank (8.7% of all respondents)

	Hai Phong		Lam Dong		Tien Giang		Ha Tinh		Ca Mau		An Giang		TOTAL	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
I don't know	2	22%	1	5%	1	9%	3	17%	6	26%	6	32%	19	19%
Increase green space/pervious surface	2	29%	8	40%	4	36%	2	11%	3	13%	3	16%	22	22%
Use environmentally-friendly/resilient materials	0	0%	6	30%	4	36%	6	33%	5	22%	2	11%	23	23%
Design appropriate ground elevation	1	11%	2	10%	4	36%	2	11%	2	9%	3	16%	14	14%
Increase water surface	0	0%	2	10%	1	9%	1	6%	0	0%	0	0%	4	4%
Reduce emissions/pollution	2	22%	3	15%	0	0%	2	11%	1	4%	0	0%	8	8%
Integrate natural systems/topography	1	11%	2	10%	1	9%	1	6%	2	9%	2	11%	9	9%
Maintain/enhance canopy cover	0	0%	4	20%	0	0%	3	17%	1	4%	2	11%	10	10%
Build dykes and other armoring	1	11%	0	0%	2	18%	3	17%	2	9%	1	5%	9	9%
Enhance ventilation of buildings		0%		0%		0%	1	6%	0	0%	0	0%	1	1%
Other	3	33%	5	25%	1	9%	6	33%	0	0%	4	21%	19	19%
TOTAL RESPONDENTS	**7**	**100%**	**20**	**100%**	**10**	**100%**	**19**	**100%**	**21**	**100%**	**17**	**100%**	**94**	**100%**

7. Which adaptation strategies have you integrated into your work? (Respondents may have more than one answer)

n = 75 11 blank (14.7% of all respondents)

	Hai Phong		Lam Dong		Tien Giang		Ha Tinh		Ca Mau		An Giang		TOTAL	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
None	N/A	N/A	1	5%	3	27%	N/A	N/A	11	48%	10	53%	25	25%
Increase green space/pervious surface	N/A	N/A	6	27%	4	36%	N/A	N/A	1	4%	1	5%	12	12%
Use environmentally-friendly/resilient materials	N/A	N/A	8	36%	0	0%	N/A	N/A	3	13%	0	0%	11	11%
Design appropriate ground elevation	N/A	N/A	1	5%	1	9%	N/A	N/A	4	17%	1	5%	7	7%
Increase water surface	N/A	N/A	2	9%	0	0%	N/A	N/A	0	0%	0	0%	2	2%
Reduce emissions/pollution	N/A	N/A	2	9%	0	0%	N/A	N/A	0	0%	0	0%	2	2%
Integrate natural systems/topography	N/A	N/A	1	5%	0	0%	N/A	N/A	0	0%	1	5%	2	2%
Maintain/enhance canopy cover	N/A	N/A	0	0%	0	0%	N/A	N/A	1	4%	0	0%	1	1%
Build dykes and other armoring	N/A	N/A	0	0%	0	0%	N/A	N/A	0	0%	0	0%	0	0%
Enhance ventilation of buildings	N/A	N/A	0	0%	0	0%	N/A	N/A	0	0%	0	0%	0	0%
Other	N/A	N/A	4	18%	1	9%	N/A	N/A	1	4%	3	16%	9	9%
TOTAL RESPONDENTS	**N/A**	**N/A**	**18**	**100%**	**9**	**100%**	**N/A**	**N/A**	**20**	**100%**	**17**	**100%**	**64**	**100%**

8. Do you know of any upcoming plans CIMPACT-DST could be applied to?

n = 103 36 blank (35% of all respondents)

	Hai Phong		Lam Dong		Tien Giang		Ha Tinh		Ca Mau		An Giang		TOTAL	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Yes	1	11%	9	41%	4	36%	8	44%	11	48%	14	74%	47	46%
No	2	22%	2	9%	0	0%	0	0%	6	26%	2	11%	12	12%
I do not know	1	11%	3	14%	2	18%	0	0%	0	0%	0	0%	6	6%
Blank	2	22%	9	41%	5	45%	11	61%	6	26%	3	16%	36	35%
TOTAL RESPONDENTS	**6**	**100%**	**23**	**100%**	**11**	**100%**	**19**	**100%**	**23**	**100%**	**19**	**100%**	**101**	**100%**

POST-TRAINING SURVEY

The following tables summarize results from online post-training surveys administered to six provinces in June 2015.

1. Which best describes your involvement with the CIMPACTDST tool and project? Select all that apply.

n =	11	0	blank (0% of all respondents)
	n	**%**	
Attended CIMPACT-DST training	12	80%	
Tested CIMPACT-DST on my computer, but didn't apply to a project	5	33%	
Told through a colleague	2	13%	
Applied the tool to a plan	1	7%	
TOTAL RESPONDENTS	11	20%	

2. Which of the following best describes your position?

n =	16	1	blank (6.3% of all respondents)
	n	**%**	
Manager/Reviewer	9	60%	
Planner/Project Designer	5	33%	
Researcher/Professor	1	7%	
TOTAL RESPONDENTS	15	100%	

3. Before your involvement with this project, how would you describe your understanding of climate change impacts in Vietnam?

n =	11	0	blank (0% of all respondents)
	n	**%**	
Very knowledgeable	1	9%	
Somewhat knowledgeable	7	64%	
Not knowledgeable	3	27%	
TOTAL RESPONDENTS	11	100%	

4. How did your involvement in this project affect your understanding of climate change impacts in Vietnam?

n=	16	0	blank (0% of all respondents)
	n	**%**	
Significantly increased	8	50%	
Moderately increased	3	19%	
Slightly increased	5	31%	
Did not increase	0	0%	
TOTAL RESPONDENTS	16	100%	

5. How did your involvement in this project affect your preparedness to consider climate change impacts in urban planning projects?

n=	16	0	blank (0% of all respondents)
	n	**%**	
Much better prepared	1	6%	
Better prepared	15	94%	
Equally prepared	0	0%	
Less prepared	0	0%	
TOTAL RESPONDENTS	16	100%	

6. In your opinion, what are the primary strengths of the CIMPACT-DST tool?

- The tool helps me identify the general climate change trends so that I can have suitable options to adapt.
- The tool helps me identify the general future climate projections.
- The tool has the comprehensive information; there is no need to look up separate information for each province. It is suitable for inter-provincial projects/plans.
- The tool has research on climate change in Vietnam.
- The tool interface is simple and easy to use.
- The results are intuitive and easy to understand.
- Provides necessary warnings and recommendations that can be integrated into planning and other areas.

7. What are the shortcomings of the CIMPACT-DST tool?

- It is not compatible with all Excel versions.
- The tool's climate projections are still limited. The recommendations are still too general. The tool name is hard to remember and pronounce.
- Outputs are too general. Only the MONRE climate projections are specific.
- Map resolution is low, so it is difficult to identify affected areas.
- Some maps are not available.

8. What kinds of projects or plans do you think CIMPACT-DST is best suited for?

- Land use plans
- Infrastructure plans
- Regional and rural plans (macro-level projects)
- General/macro-level plans
- General and zoning plans
- All kinds of projects and plans

9. How likely are you to use CIMPACT-DST in the future?

n =	16	3	blank (23.1% of all respondents)
	n	**%**	
Very Likely	**4**	31%	
Likely	**9**	69%	
Unlikely	**0**	0%	
TOTAL RESPONDENTS	13	100%	

12. Why?

- It has the latest information.
- It can improve the orientation for planners.
- Currently, managers and designers' concepts and responsibilities toward climate change are still unclear.
- To meet the demands of climate change.
- Currently, there are no other tools available.
- The tool is useful.

10. How many projects or plans do you work on each year?

n =	13	2	blank (15.4% of all respondents)
	n	**%**	
0	0	0%	
1-2	3	27%	
3-4	2	18%	
5-6	0	0%	
More than 6	6	55%	
TOTAL RESPONDENTS	11	100%	

11. For how many plans or projects will you or your staff apply the tool each year?

n =	13	3	blank (23.1% of all respondents)
	n	**%**	
0	2	20%	
1-2	4	40%	
3-4	1	10%	
5-6	2	20%	
More than 6	1	10%	
TOTAL RESPONDENTS	10	100%	

For what proportion of your plans or projects will you or your staff apply the tool each year? (Derived from Questions 10 and 11)

n =	13	3	blank (23.1% of all respondents)
	n	**%**	
None of them	2	20%	
Less than half	1	10%	
Half	2	20%	
More than half	1	10%	
All	4	40%	
TOTAL RESPONDENTS	10	100%	

12. What would make you more likely to use CIMPACT-DST in the future?

- If the tool had more information relevant to the reviewing process, which helps me consult decision makers with reliable information.
- If the tool had more specific recommendations.
- If it had more information on how climate change is related to the construction industry.
- If it were mandatory.

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